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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,252	04/09/2004	George J. Miao		1730

7590  
George J. Miao  
2 Inverness Drive  
Marlboro, NJ 07746

12/13/2005

EXAMINER
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LA, ANH V

ART UNIT	PAPER NUMBER
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2636

DATE MAILED: 12/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/822,252

Applicant(s)

MIAO

Examiner

Anh V. La

Art Unit

2636

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 11, 12 and 16-21 is/are rejected.
- 7) ☒ Claim(s) 4-10 and 13-15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### DETAILED ACTION

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 11-12, and 16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Monroe.

Regarding claim 1, Monroe discloses a MIMO-based space-time wireless sensor node and transceiver comprising a sensor array unit 800, 29, 115 (figure 16), an A/D converter unit 16, 510,40, a signal processing and data computing unit 85, 220, 222, a MIMO-based space-time transceiver 14, 314, 580, a memory bank (column 6, lines 35-51), a power unit, a power generator and a multiple antenna unit 82, 282.

Regarding claim 2, Monroe discloses N sensors, each of the sensors being a multimode sensor device 800, 29, 115 (figure 16).

Regarding claim 3, Monroe discloses the sensor being electronic and optical.

Regarding claim 11, Monroe discloses a MIMO-based space-time sensor basestation comprising a multiple antenna unit 83, a demodulation and radio frequency receiver 212, a space-time processor 85, 220, 222, and decoding (col. 23, lines 1-7), a space- time Rake processor 85, 220, 222, a deinterleaver and FEC decoding (col. 23, lines 1-7), a MIMO channel estimate, and a pseudorandom sequence generator (col. 16, lines 1-10).

Regarding claim 12, Monroe discloses training sequence (col. 16, lines 1-10).

Art Unit: 2636

Regarding claim 16, Monroe discloses a system of MIMO-based space-time wireless sensor node comprising a power unit coupled to a power generator, and a power saving mode of operation (col. 14, lines 48-67).

Regarding claim 17, Monroe discloses the power generator being one of solar cells and low-power DC source (col. 14, lines 48-67).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 18-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Monroe in view of Breed.

Regarding claims 18-20, Monroe discloses all the claimed subject matter as set forth above in the rejection of claim 16, and further discloses a full operation mode, but does not clearly disclose a sleep mode, a wake-up mode, a partial operation mode. Breed teaches the use of a sleep mode, a wake-up mode, a partial operation mode (col. 27, lines 1-15). It would have been obvious at the time the invention was made to a person having ordinary skill in the art to include a sleep mode, a wake-up mode, a partial operation mode to the system of Monroe as taught by Breed for the purpose of saving power supply.

Art Unit: 2636

Regarding claim 21, Monroe discloses a sensor array unit 800, 29, 115 (figure 16), an A/D converter unit 16, 510,40, a signal processing and data computing unit 85, 220, 222.

5. Claims 4-10 and 13-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mehaffey, Addy, Tanenhaus, and Marman teach wireless communication systems.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anh V. La whose telephone number is (571) 272-2970. The examiner can normally be reached on Mon-Fri from 9:30am to 6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffery Hofsass can be reached on (571) 272-2981. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2636

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**ANH V. LA**  
**PRIMARY EXAMINER**

Anh V La  
Primary Examiner  
Art Unit 2636

AI  
December 04, 2005